REMARKS

Claims 19, 20, 22-27, and 29-32 are all the claims pending in the present application. Applicants thank the Examiner for withdrawing several of her previous rejections based on different references, however the Examiner now applies new references to support her rejections.

In the current Office Action, the Examiner now applies another new reference McAdam et al. (U.S. Patent No. 6,480,882) to allegedly support the rejection of the pending claims over prior art, as well as other § 112 and § 101 rejections.

Specifically, claims 19 and 24 are now rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claims 19, 24, and 29 are rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. Finally, claims 19, 20, 22-27, and 29-32 are now rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over McAdam.

§ 112, Second Paragraph, Rejection - Claims 19 and 24

Claims 19 and 24 are rejected under 35 U.S.C. § 112, second paragraph, based on the reasons set forth on page 2 of the Office Action. The Examiner relies on the Federal Circuit case, *IPXL Holdings v. Amazon.com Inc.*, to allegedly support the rejection under 35 U.S.C. § 112, second paragraph.

The Examiner indicates that claims 19 and 24 are rejected under 35 U.S.C. § 112, second paragraph, because it is allegedly unclear whether infringement occurs when one creates a system configured to perform the claimed steps or when the system is actually used to perform these steps.

In response, Applicants submit that the Examiner's reliance on the *IPXL Holdings* is misplaced as the *IPXL Holdings* case relates to an invention in which a system is claimed that comprises elements of the system in addition to a step where a user performs an operation on elements of the system. Very differently here, claim 19 simply recites a method along with operations that constitute the method. For example, claim 19 recites, in part, operations such as: 1) establishing a communication channel..., 2) transmitting.., 3) receiving..., and 4) allowing a user to control an operation of a server device... . Claim 19 as well as claim 24 are clearly definite and do not present any ambiguity as was the case in the *IPXL Holdings* case, which included a very different claim structure that does not relate to the claimed invention in the instant case.

§ 101 Rejection - Claims 19, 24, and 29

Claims 19, 24, and 29 are rejected under 35 U.S.C. § 101 based on reasons set forth on pages 2-4 of the Office Action. Applicants traverse these rejections at least based on the following reasons.

With respect to claim 29, the Examiner begins his argument supporting the rejection of claim 29 under 35 U.S.C. § 101 by stating that "nowhere in the specification is the computer usable medium limited to statutory subject matter." It is very apparent that the Examiner may have made a mistake in rejecting claim 29 under 35 U.S.C. § 101, as nowhere does claim 29 recite computer usable medium. Claim 29 is clearly directed to a network device comprising, *inter alia*, a display screen. A device that comprises a display screen is statutory subject matter per se.

With respect to claims 19 and 24, the Examiner is correct in asserting that a valid process under 35 U.S.C. § 101 must either transform underlying subject matter or be tied to another

statutory class, such as a particular apparatus. In this case, Applicants submit that method claims 19 and 24 both include operations wherein individual operations are clearly tied to particular apparatuses. For example, claim 19 includes several limitations that are tied to a particular apparatus. That is, the first operation involves establishing a communication channel between a client device and a server device. Clearly, the client device and server device are particular apparatuses. Furthermore, claim 19 recites the operation of receiving a predetermined signal at a client device. Yet again, this operation demonstrates that claim 19 is tied to a particular operation.

At least based on the reasons set forth above, Applicants submit that claim 19 is directed to statutory subject matter. Claim 24 recites subject matter similar to that which is set forth in claim 19, and, accordingly, Applicants submit that claim 24 is also directed to statutory subject matter.

§ 103(a) Rejection (McAdam) - Claims 19, 20, 22-27, and 29-32

Claims 19, 20, 22-27, and 29-32 are rejected over McAdam based on the reasons set forth on pages 4-6 of the Office Action.

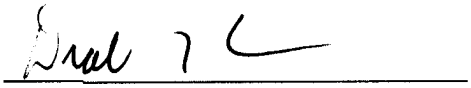
To overcome this rejection, Applicants perfect priority under 35 U.S.C. § 365 and 119, and request removal of McAdam as a prior art reference. McAdam has a filing date of June 25, 1999, which is after the filing date of KR 98-16141 (May 6, 1998), from which the present application claims benefit of priority. To perfect priority, Applicants submit herewith a verified English language translation of priority document KR 98-16141, and a statement that the translation is accurate.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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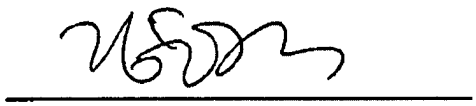
WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: October 5, 2009

CERTIFICATION OF TRANSLATION

I, ***Seung-hye Kim***, an employee of Y.P.LEE, MOCK & PARTNERS of Koryo Bldg., 1575-1 Seocho-dong, Seocho-gu, Seoul, Republic of Korea, hereby declare under penalty of perjury that I understand the Korean language and the English language; that I am fully capable of translating from Korean to English and vice versa; and that, to the best of my knowledge and belief, the statement in the English language in the attached translation of ***Korean Patent Application No. 10-1998-0016141*** consisting of ***15*** pages, have the same meanings as the statements in the Korean language in the original document, a copy of which I have examined.

Signed this 30th day of September 2009



ABSTRACT

[Abstract of the Disclosure]

A method for displaying changes in the operation states of system devices in an IEEE 1394 network system is provided. A method for displaying changes in the states of IEEE 1394 devices on a display screen of a device which operates as a client when various digital devices connected to an IEEE 1394 network operate as clients or servers, having the same protocol layer as an Internet protocol stack on the upper 1394 communication layer for exchanging data, comprising the steps of: (a) the device which operates as a client (a client device) establishing a communication channel with respect to devices which operate as servers (server devices); (b) the server devices transmitting a predetermined signal for indicating changes in the operation states thereof to the client device when the server devices perform a predetermined operation and then stops the operation or performs another operation; and (c) the client device receiving the predetermined signal from the server devices and displaying the change in the operation state of a concerned server device on a screen thereof. According to the present invention, a user can see the operation states of the devices connected to an IEEE 1394 network on a screen of one device among the devices and can effectively control the operation of a desired device.

[Representative Drawing]

FIG. 5

SPECIFICATION

[Title of the Invention]

METHOD FOR DISPLAYING OPERATION STATE OF SYSTEM DEVICES IN IEEE 1394 NETWORK SYSTEM

[Brief Description of the Drawings]

FIG. 1 shows a protocol stack of an IEEE 1394 device (1394 device);

FIG. 2 shows a block diagram of a digital device having a 1394 communication function;

FIG. 3 is an example of the structure of the IEEE 1394 network for describing the present invention;

FIG. 4 shows the 1394 network protocol stack of FIG. 3;

FIG. 5 is a flowchart of a method for displaying changes in the states of IEEE 1394 devices according to the present invention;

FIG. 6 is a flowchart of another method for displaying changes in the states of IEEE 1394 devices according to the present invention; and

FIG. 7 shows the contents of FIG. 6 using a protocol layer diagram of a digital TV.

[Detailed Description of the Invention]

[Object of the Invention]

[Technical Field of the Invention and Related Art prior to the Invention]

The present invention relates to an IEEE 1394 network, and more particularly, to a method for displaying an IEEE 1394 network system operation state so that a user can see changes in the operations of devices connected to the IEEE 1394 network through a device among the devices in real time.

Currently, various digital devices such as digital TVs (DTVs), digital VCRs (DVCRs) and digital set top boxes are introduced and the IEEE 1394 network that allows these digital devices to interface and communicate each other attracts interests (refer to IEEE 1394-1995 High Performance Serial Bus, IEC 61883, etc.).

FIG. 1 shows a protocol stack of an IEEE 1394 device (1394 device). A general

protocol stack in which respective devices adopting a 1394 network communication function is comprised of a physical layer 100 which is the lowest layer, a link layer 110, a transaction layer 120, and a serial bus management layer 130 which is the upper most layer. The physical layer 100 receives a bit column from the link layer 110 during transmission, obtains the right to use a serial bus, encodes the bit column, converts the bit column into an electrical signal, and transfers the signal to an external bus. Reverse processes are performed during reception. The link layer 110 deals with data in units of a packet and has functions of constructing and dismantling a packet, detecting errors, and managing a bus cycle. In general, the physical layer 100 and the link layer 110 are comprised of a chipset. The transaction layer 120 provides a transaction such as reading/writing/locking of data and performs asynchronous communication with different devices (or nodes) on the 1394 bus using the service provided by a lower layer. The serial bus management layer 130 holds various material structures such as a configuration ROM and a control and status register (CSR) and manages the upper most layer such as the connection structure of an entire system connected to a power supply and a bus (topology)/ speed map. The transaction layer 120 and the serial bus management layer 130 are formed of software and are realized by being built into the microcomputer of the respective devices.

FIG. 2 shows a block diagram of a digital device having a 1394 communication function. The digital device is comprised of a device dependent hardware 200, a microcomputer 210, a physical layer execution block 220, and a link layer execution block 230. The device dependent hardware 200 executes peculiar functions of a concerned device. The microcomputer 210 for supporting the 1394 communication executes the operation of the transaction layer or the serial bus management layer, described in FIG. 1. The physical layer execution block 220 is hardware for realizing the function of the physical layer 100 of FIG. 1. The link layer execution block 230 is hardware for realizing the CIP header inserting/removing functions of the link layer 110 and IEC 61883.

In a conventional technology, various digital devices are connected to each other on the 1394 network as mentioned above and transmit and receive data. However, a user cannot see changes in the operation states of all devices through one device.

[Technical Goal of the Invention]

To solve the above problem, it is an object of the present invention to provide a method for displaying the operation states of system devices in an IEEE1394 network system by which a user can see the operation states of the devices connected to the IEEE 1394 network on a screen of one device.

[Structure and Operation of the Invention]

Accordingly, to achieve the above objective, there is provided a method for displaying changes in the states of IEEE 1394 devices on a display screen of a device which operates as a client when various digital devices connected to an IEEE 1394 network operate as clients or servers, having the same protocol layer as an Internet protocol stack on the upper 1394 communication layer for exchanging data, comprising the steps of: (a) the device which operates as a client (a client device) establishing a communication channel with respect to devices which operate as servers (server devices); (b) the server devices transmitting a predetermined signal for indicating changes in the operation states thereof to the client device when the server devices perform a predetermined operation and then stops the operation or performs another operation; and (c) the client device receiving the predetermined signal from the server devices and displaying the change in the operation state of a concerned server device on a screen thereof.

The client device may establish a communication channel with respect to the server devices by periodical polling in the step (a).

A Java applet may operate through the communication channel when the client device established the communication channel with respect to the server devices in the step (a).

To achieve the above objective, there is provided a method for displaying changes in the states of IEEE 1394 devices on a display screen of a device which operates as a client when various digital devices connected to an IEEE 1394 network operate as clients or servers, having the same protocol layer as an Internet protocol stack on the upper 1394 communication layer for exchanging data, comprising the steps of: a 1394 layer of the device which operates as a client (a client device) receiving data on the operation states of devices which operate as servers (server devices) on a 1394 network bus; the 1394 layer of the client device examining whether the previous operation state data of the server devices is different from the current operation state

data; the 1394 layer of the client device transmitting the current operation state of a server device, whose previous operation state data is different from the current operation state data, to a hypertext transmission protocol (HTTP) layer which is the upper most protocol layer of the client device; and displaying the change of the operation state of the concerned server device on a screen thereof.

Preferred embodiments of the present invention will now be described with reference to the attached drawings.

FIG. 3 is an example of the structure of the IEEE 1394 network for describing the present invention. A digital TV 300, a digital VCR 310, a digital camcorder 320, and a digital set top box 330 are connected to a 1394 bus. Here, the respective digital devices 300 through 330 include a protocol layer as shown in FIG. 4 and transmit and receive data according to a client/server method used in a general Internet. The digital TV 300 by which a user can see predetermined images and character data on a screen operates as a client and includes a web browser that is used on the Internet. The digital devices 310 through 330 play the same role as that of a web server on the Internet. Here, the hypertext documents to be transferred by the respective devices are in a HTML document hierarchy including information on the functions and the operations of the respective devices. The digital TV 300 which is the client accesses the respective web sites from the web server devices 310 through 330 using the web browser and controls concerned devices. Namely, a user can control the peculiar operations such as reproducing and recording operations of the remaining devices, i.e., the DTV 300 through the DVCR 310.

FIG. 4 shows the 1394 network protocol layer of FIG. 3, which is comprised of a 1394 layer 400, an Internet protocol (IP) layer 410, a transmission control protocol (TCP) layer 420, and a hypertext transmission protocol (HTTP) layer 430. The 1394 layer 400 is a physical layer for transmitting and receiving data through a 1394 network bus. In the IP layer 410, a protocol for connecting independently managed communication networks to each other is adopted in order to use the communication networks together. In the TCP layer 420, a communication net protocol of a system connected through the Internet is adopted. In the HTTP layer 430, a communication protocol used for exchanging the hypertext document in the Internet is adopted.

FIG. 5 is a flowchart of a method for displaying changes in the states of IEEE 1394 devices according to the present invention, in which changes in the states of

server devices in the system as shown in FIG. 3, connected to the IEEE 1394 network, to which the protocol stack as shown in FIG. 4 is applied, are displayed. First, the digital TV 300 establishes a communication channel with respect to the digital VCR 310, the digital camcorder 320, and the digital set top box 330, which are server devices (step 500). The communication channel can be established by a method of maintaining a channel connection once a channel is opened and a polling method in which the digital TV 300 repeats processes of opening a channel, communicating with a server device, and terminating a communication connection by closing the channel, with respect to the server devices 310 through 330. Also, when the digital TV 300 establishes a channel with respect to the server device using a web browser, it is possible to easily transmit a predetermined signal with respect to the change in the operation state of the server device from the server device to the digital TV 300 by operating a Java applet which establishes a communication between the client and the server on the network. When the channel established server device performs a predetermined operation and stops the operation or performs another operation, a predetermined signal indicating a change in the operation is transmitted to the digital TV 300 through the established channel (step 510). The digital TV 300 receives the predetermined signal indicating the change in the operation and displays the change in the operation of a concerned server device or contents of the change on a screen (step 520).

FIG. 6 is a flowchart of another method for displaying changes in the states of IEEE 1394 devices according to the present invention, in which changes in the states of server devices in the system as shown in FIG. 3, connected to a network, to which the protocol stack as shown in FIG. 4 is applied, are displayed. First, the digital TV 300 takes data on the operation states of the server devices 310 through 330 transmitted to the 1394 network bus in the 1394 layer of the digital TV 300 (step 600). The 1394 layer of the digital TV 300 memorizes previous operation states of the server devices, receives the current operation states of the server devices, compares the received current operation states with the previous operation states, and examines whether they are different from each other (step 610). The 1394 layer of the digital TV 300 transmits the current operation state of a server device, whose previous operation state data is different from the current operation state data, to the hypertext transmission protocol HTTP layer which is the upper most protocol layer (step 620). The digital TV 300

displays the contents of the change in a server device, whose operation state is changed, on a screen (step 630).

FIG. 7 shows the contents of FIG. 6 using a protocol layer diagram of a digital TV. It is noted from FIG. 7 that the operation state data of the server device received on the 1394 bus is directly transmitted to the HTTP layer, skipping over the remaining layers.

The above-mentioned embodiment of the present invention can be embodied in a program which can be executed in a computer. The embodiment can be realized in a generally used digital computer for operating the program from a medium used in the computer. The medium can be a storage medium such as a magnetic storage medium (CD-ROM and DVD) or a carrier wave (transmission through the Internet).

The recording medium stores a program code which can execute a first step in which a client device establishes a communication channel with respect to a server device, a second step in which a predetermined signal is transmitted from the server device to the client device when the server device performs a predetermined operation and stops the operation or performs another operation, and a third step in which the client device receives a predetermined signal from the server device and displays the change in the operation state of a concerned server device on the screen thereof, in the network system having the protocol stack of FIG. 4. The program is positioned in an upper layer as it prevents more errors of the video data. The upper layer and the lower layer have backward compatibility in which the upper layer includes the lower layer. The program is coded so that more errors are prevented with respect to data which considerably affects picture quality.

A functional program, a code, and a code segment for realizing the present invention can be easily realized by programmers knowledgeable in the art.

[Effect of the Invention]

According to the present invention, a user can see the operation states of the devices connected to an IEEE 1394 network on a screen of one device among the devices and can effectively control the operation of a desired device.

What is claimed is:

1. A method for displaying changes in the states of IEEE 1394 devices on a display screen of a device which operates as a client when various digital devices connected to an IEEE 1394 network operate as clients or servers, having the same protocol layer as an Internet protocol stack on the upper 1394 communication layer for exchanging data, comprising the steps of:

(a) the device which operates as a client (a client device) establishing a communication channel with respect to devices which operate as servers (server devices);

(b) the server devices transmitting a predetermined signal for indicating changes in the operation states thereof to the client device when the server devices perform a predetermined operation and then stops the operation or performs another operation; and

(c) the client device receiving the predetermined signal from the server devices and displaying the change in the operation state of a concerned server device on a screen thereof.

2. The method of claim 1, wherein the client device establishes a communication channel with respect to the server devices by periodical polling in the step (a).

3. The method of claim 1, wherein a Java applet operates through the communication channel when the client device established the communication channel with respect to the server devices in the step (a).

4. The method of claim 1, wherein the network is an IEEE 1394 network.

5. A method for displaying changes in the states of IEEE 1394 devices on a display screen of a device which operates as a client when various digital devices connected to an IEEE 1394 network operate as clients or servers, having the same protocol layer as an Internet protocol stack on the upper 1394 communication layer for exchanging data, comprising the steps of:

a 1394 layer of the device which operates as a client (a client device) receiving

data on the operation states of devices which operate as servers (server devices) on a 1394 network bus;

the 1394 layer of the client device examining whether the previous operation state data of the server devices is different from the current operation state data;

the 1394 layer of the client device transmitting the current operation state of a server device, whose previous operation state data is different from the current operation state data, to a hypertext transmission protocol (HTTP) layer which is the upper most protocol layer of the client device; and

displaying the change of the operation state of the concerned server device on a screen thereof.

FIG. 1

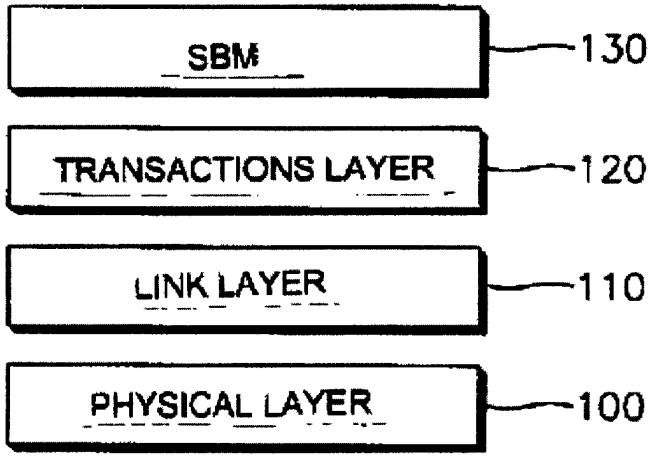

SBM
130
TRANSACTIONS LAYER
120
LINK LAYER
110
PHYSICAL LAYER
100

FIG. 2

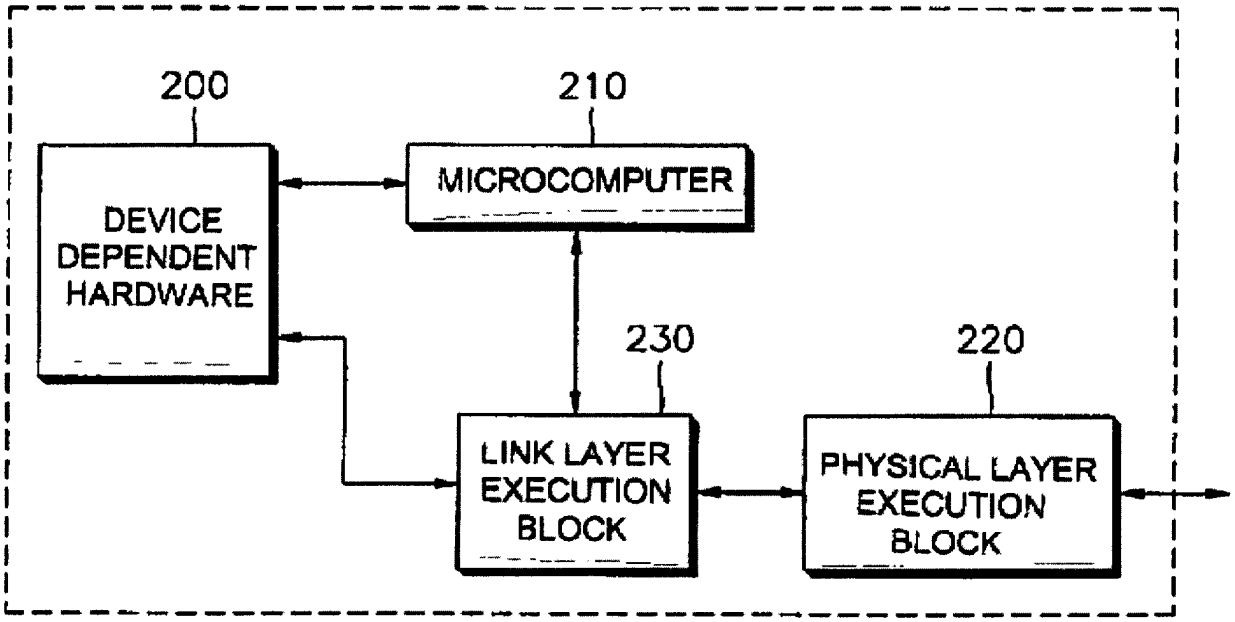

200
210
DEVICE DEPENDENT HARDWARE
MICROCOMPUTER
230
220
LINK LAYER EXECUTION BLOCK
PHYSICAL LAYER EXECUTION BLOCK

FIG. 3

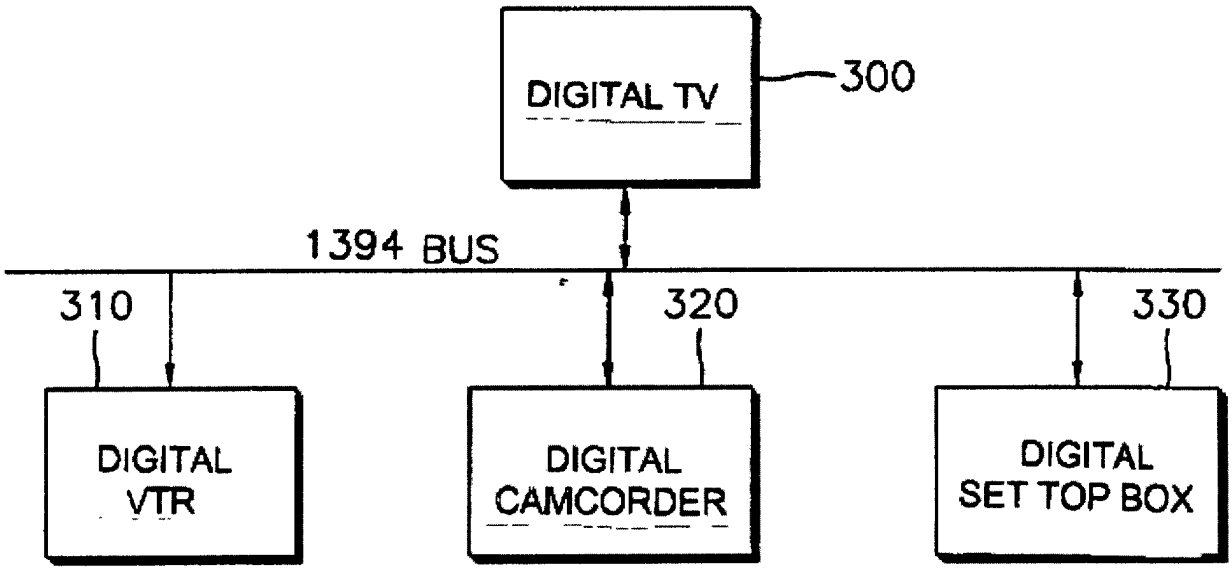

DIGITAL TV
300
1394 BUS
310
320
330
DIGITAL VTR
DIGITAL CAMCORDER
DIGITAL SET TOP BOX

FIG. 4

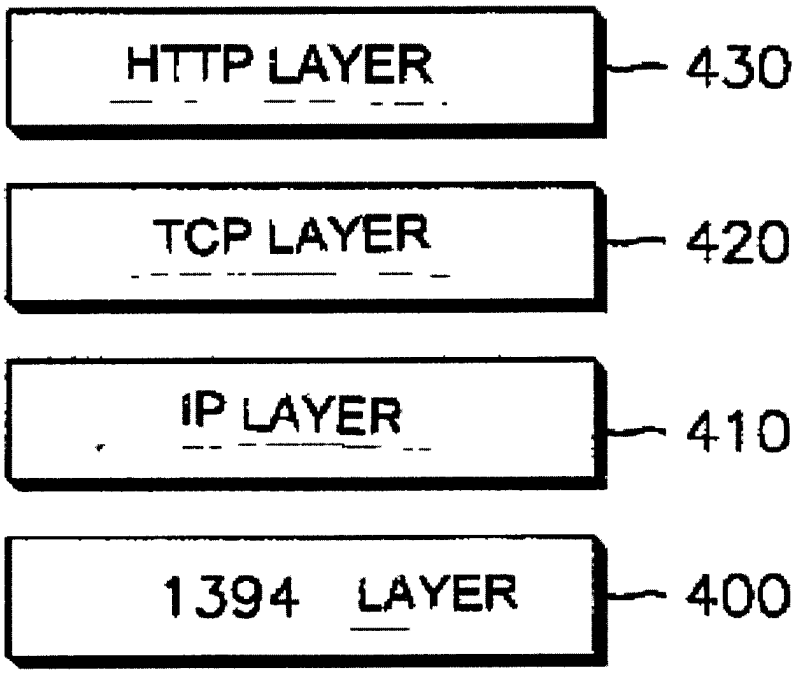


FIG. 5

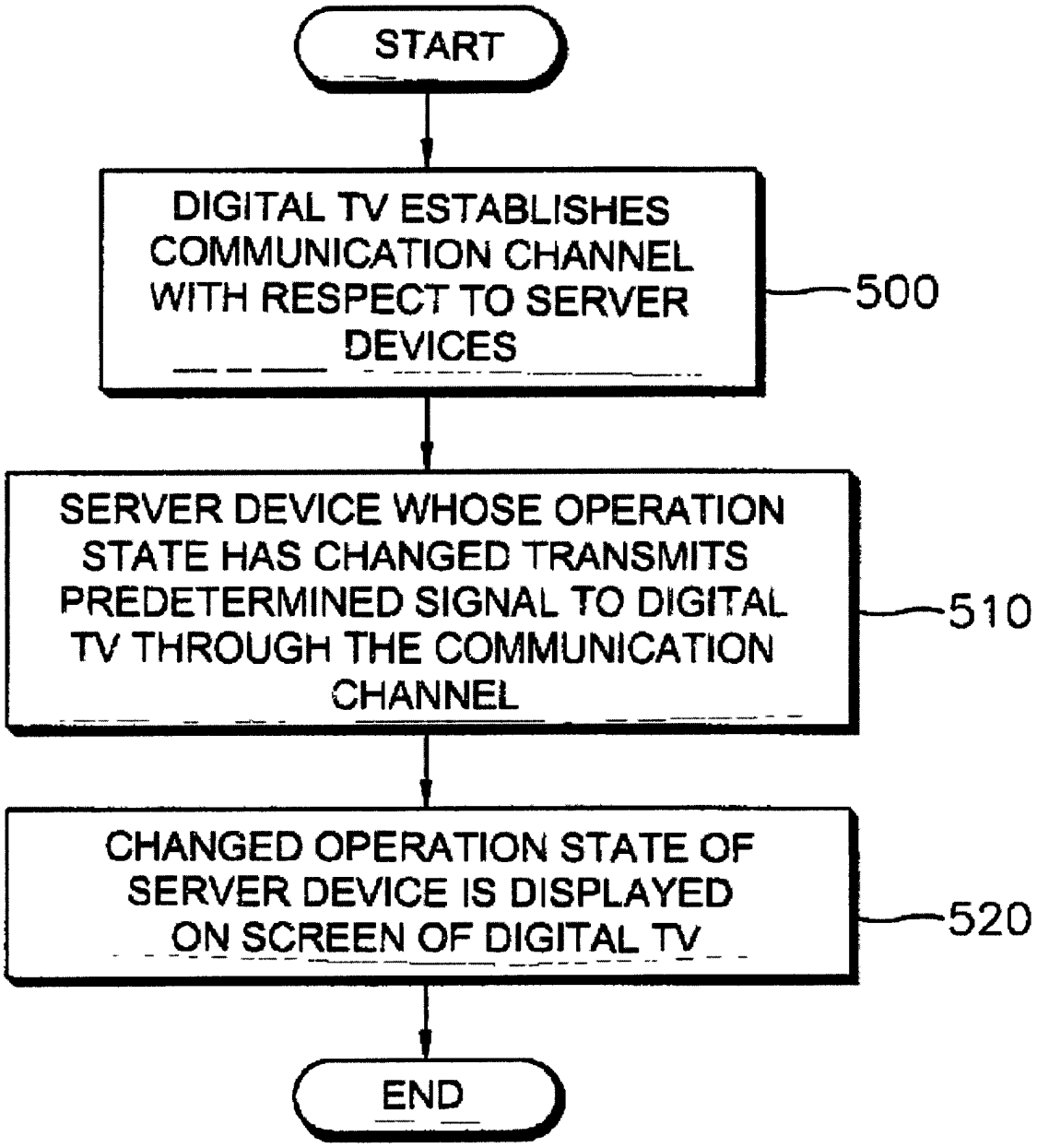

START
DIGITAL TV ESTABLISHES COMMUNICATION CHANNEL WITH RESPECT TO SERVER DEVICES
500
SERVER DEVICE WHOSE OPERATION STATE HAS CHANGED TRANSMITS PREDETERMINED SIGNAL TO DIGITAL TV THROUGH THE COMMUNICATION CHANNEL
510
CHANGED OPERATION STATE OF SERVER DEVICE IS DISPLAYED ON SCREEN OF DIGITAL TV
520
END

FIG. 6

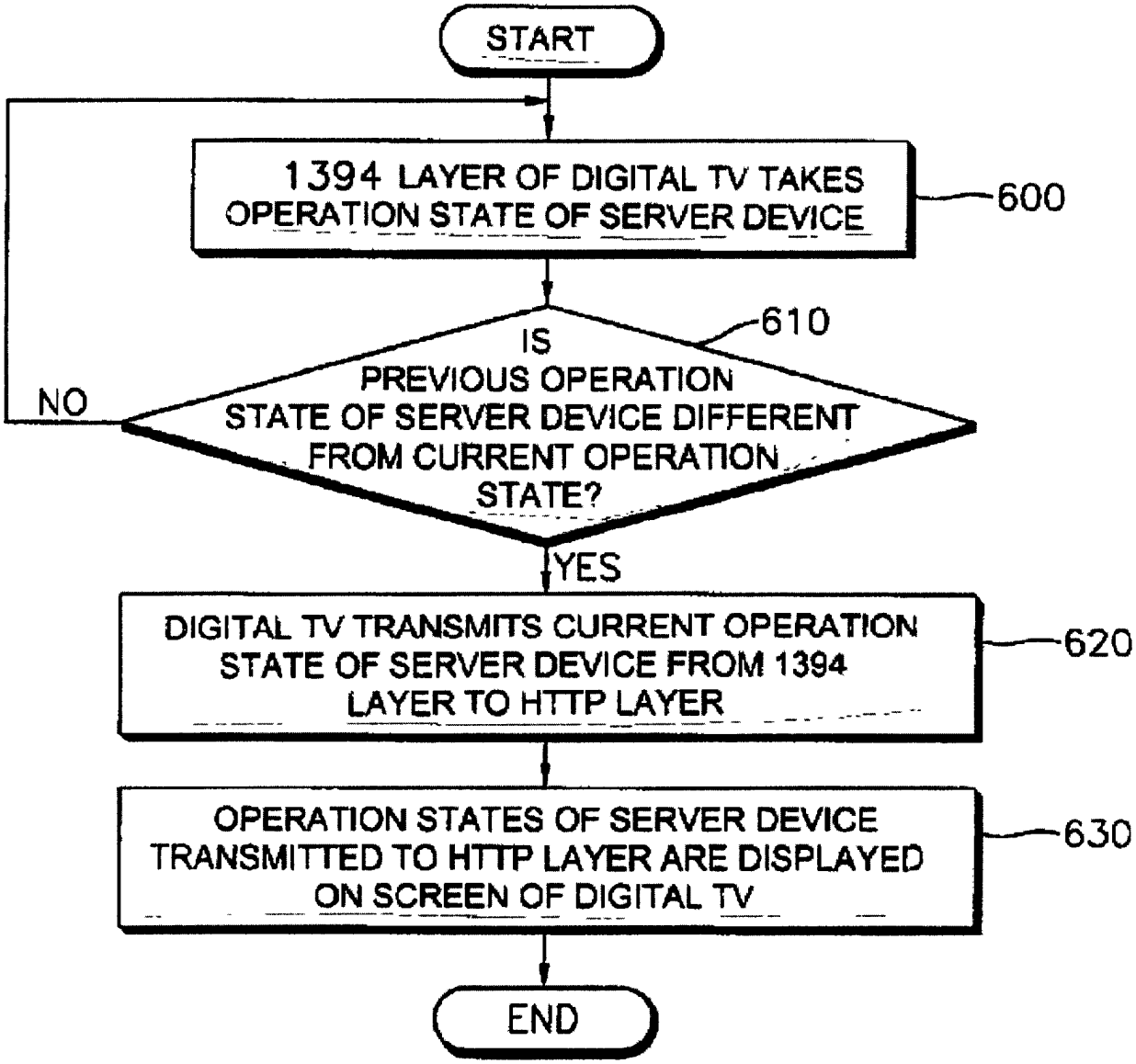
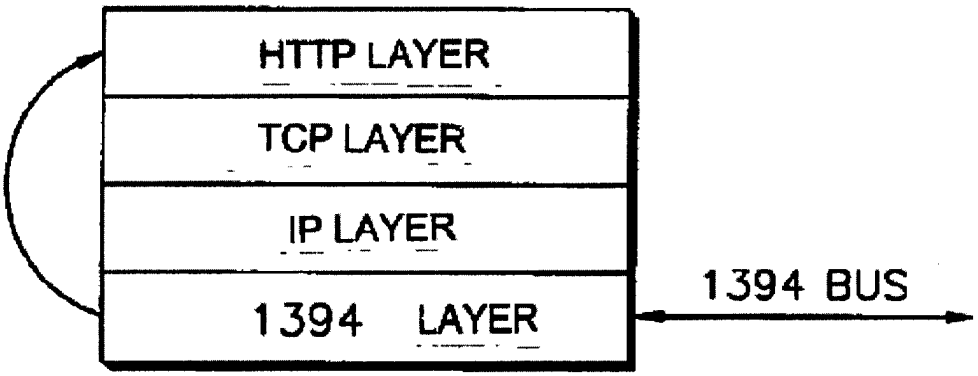

START
1394 LAYER OF DIGITAL TV TAKES OPERATION STATE OF SERVER DEVICE
600
IS PREVIOUS OPERATION STATE OF SERVER DEVICE DIFFERENT FROM CURRENT OPERATION STATE?
610
NO
YES
DIGITAL TV TRANSMITS CURRENT OPERATION STATE OF SERVER DEVICE FROM 1394 LAYER TO HTTP LAYER
620
OPERATION STATES OF SERVER DEVICE TRANSMITTED TO HTTP LAYER ARE DISPLAYED ON SCREEN OF DIGITAL TV
630
END

FIG. 7



SERVER DEVICE OPERATION STATE DATA TRANSMISSION PROTOCOL OF DIGITAL TV